

What is claimed is:

1. An apparatus for sensing and digitally transmitting data via a wireless network comprising:

(a) means for sensing analog and/or digital data at a first location;

(b) means for converting said analog data from said sensing means to converted digital data;

(c) means for processing and storing said sensed and/or converted digital data received from said means for sensing and said means for converting; and

(d) means for wirelessly transmitting and receiving digital data being capable of transmitting digital data received from said means for processing and storing;

wherein the digital data is transmitted to a remote device in response to an apparatus-specific command received from the remote device specific to said apparatus.

2. An apparatus, as claimed in Claim 1, wherein said steps of first transmitting and second transmitting uses the personal communications system transmission protocol of a network selected from the group consisting of a global system for mobility (GSM) technology network, a time division multiple access (TDMA) technology network, frequency division multiple access technology network (FDMA), personal access communications system technology network (PACS) or a code division multiple access (CDMA) technology network.

3. An apparatus, as claimed in Claim 1, wherein the digital data is transmitted to the remote device using a control channel or technical equivalent of said wireless network.

4. An apparatus, as claimed in Claim 1, wherein said means for sensing data further comprises:

a sensor unit for sensing data; and

an intermediate wireless transmitting unit for wirelessly transmitting sensed data to said means for processing and storing.

5 5. An apparatus, as claimed in Claim 1, wherein said means for computing and storing further comprises:

a central processing unit for processing said digital data;

10 an erasable, programmable read-only memory unit electronically connected to said central processing unit for storing an algorithm used to process said sensed and converted digital data;

a random access memory unit connected to said central processing unit and said erasable, programmable read-only memory unit for storing said processed digital data.

15 6. An apparatus, as claimed in Claim 1, further comprising a connective interface for connecting existing telecommunications system at the first location to said means for wirelessly transmitting data, wherein a wireless telecommunications connection capable of at least one of  
20 voice and data transmission is created.

7. A method for sensing and digitally transmitting data via a wireless network comprising the steps of:

(a) sensing analog and/or digital data at a first location;

25 (b) converting the sensed analog data to digital data;

(c) processing the digital data;

(d) storing the processed digital data; and

30 (e) transmitting the digital data over a wireless network to a remote device, wherein the digital data is transmitted to the remote device in response to an apparatus-specific command received from the remote device.

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8. The method, as claimed in Claim 7, wherein the of transmitting transmits digital data using a control el of said cellular network.

5     cellular network is selected from the group consisting of  
a GSM technology network or a TDMA technology network.

10. An apparatus for monitoring utility usage data  
an existing conventional utility meter having a  
active device, said apparatus comprising:

10 means for transmitting radiation;  
means for receiving the transmitted radiation;  
means for reflecting the transmitted radiation located  
between said means for transmitting and said means for  
receiving, wherein said means for reflecting optically  
15 connects said means for transmitting, said means for  
receiving and the reflective device;

means for calculating a number of rotations of the  
ective device from the reflected radiation;

means for processing the number of rotations of the  
20 reflective device into utility usage data;

means for electronically storing the utility usage  
and

means for transmitting the utility usage data to a  
re device.

25            11. The apparatus, as claimed in Claim 10, wherein  
the utility usage data is wirelessly transmitted.

12. The apparatus, as claimed in Claim 11, wherein utility usage data is transmitted over an unlicensed frequency.

13. The apparatus, as claimed in Claim 10, wherein  
said means for reflecting comprises two mirrors.

14. The apparatus, as claimed in Claim 10, further comprising a display monitor for visually displaying the type/usage data to an observer.

15. An apparatus as claimed in Claim 10, wherein the reflective device is selected from the group consisting of a rotatable disk, a rotating dial or a mechanical indicator.

5 16. The apparatus, as claimed in Claim 10, wherein said means for transmitting the utility usage data to a remote device comprises:

10 a first transmitter electrically connected to said apparatus, said first transmitter capable of wirelessly transmitting the utility usage data over an unlicensed radio frequency to a second means for wirelessly transmitting digital data, wherein said second means for wirelessly transmitting digital data is remotely located from said apparatus;

15 an inductive/capacitive super regenerative receiver electrically connected to said second means for wirelessly transmitting digital data, said receiver being capable of receiving data transmitted by said first transmitter over the unlicensed radio frequency; and

20 said second means for wirelessly transmitting digital data being capable of wirelessly transmitting the utility usage data over a wireless network to the remote device.

25 17. A method for monitoring utility usage data from an existing conventional utility meter having a reflective device, the method comprising the steps of:

(a) emitting an infrared beam of radiation from a source;

(b) reflecting the beam from a means for reflecting to the reflective device;

30 (c) reflecting the beam from the reflective device to the means for reflecting;

(d) reflecting the beam from the means for reflecting to a detector;

(e) detecting the beam; and

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(f) calculating the number of rotations of reflective device based on the number of times the beam is interrupted.

18. A method as claimed in Claim 17, wherein the  
5 reflective device is selected from the group consisting of a rotatable disk, a rotating dial or a mechanical indicator.

19. A method for transmitting a data sequence via a personal communications system transmission protocol  
10 comprising the steps of:

first transmitting a request for data from an access point to a data collection unit via a short message service portion of the personal communications system transmission protocol;

15 receiving said request for data at said data collection unit;

interpreting said request for data from said access point by said data collection unit;

20 compiling data from said data collection unit, said data being requested in said request for data;

second transmitting said compiled data from said data collection unit to said access point via said short message service portion of the control channel of the personal communications system transmission protocol; and

25 receiving said compiled data at said access point.

20. The method, according to Claim 19, wherein said step of first transmitting comprises the steps of:

30 first accessing said short message service portion of said control channel of the personal communications system transmission protocol from said access point, said control channel containing a first sequence of short message service transmission packets;

inserting said request for data into said control channel of the short message service portion of said

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creating a second sequence of short message service transmission packets using said inserting step;

10           21. The method, according to Claim 19, wherein said  
step of receiving said request comprising the step of:

22. The method according to Claim 19, wherein said step of interpreting comprising the step of:

23. The method, according to Claim 19, wherein said step of second transmitting comprising the steps of:

30            inserting said compiled data from said compiling  
step into said short message service transmission packets  
of said third sequence;

transmitting said fourth sequence of short  
message service transmission packets to said access point  
35 from said access point via said short message service

portion of said control channel of the personal communications system transmission protocol.

24. The method, according to Claim 19, wherein said steps of first transmitting and second transmitting uses the personal communications system transmission protocol of a network selected from the group consisting of a global system for mobility (GSM) technology network, a time division multiple access (TDMA) technology network, frequency division multiple access technology network (FDMA), personal access communications system technology network (PACS) or a code division multiple access (CDMA) technology network.

25. The method, according to Claim 19, wherein said first transmitting and said second transmitting steps transmit over a stand-alone dedicated control channel (SDCCH) of said short message service portion of the personal communications system transmission protocol.

26. The method, according to Claim 19, wherein said first transmitting and second transmitting transmit over a slow associated control channel (SACCH) of said short message service portion of the personal communications system transmission protocol.

27. The method, according to Claim 19, further comprising the steps of:

sensing analog and/or digital data at a first location;

converting the sensed analog data to digital data; and processing the digital data and the data converted by said converting step.

28. The method, according to Claim 19, further comprising the steps of:

collecting data at said data collection unit; electronically stamping said collected data with a date and time that said data was collected by said collecting step; and

storing said processed and electronically stamped data.

29. The method, according to Claim 19, further comprising the steps of:

5       composing at least one short message from said compiled data at said data collection unit; and

      inserting said at least one short message in the short message service portion of the control channel of the personal communications system transmission protocol.

10       30. A method for transmitting a data sequence via a personal communications system transmission protocol comprising the steps of:

      first accessing said short message service portion of said control channel of the personal communications system transmission protocol from said access point, said control channel containing a first sequence of short message service transmission packets;

15       inserting said request for data into said control channel of the short message service portion of said personal communications system transmission protocol as a short message;

20       creating a second sequence of short message service transmission packets using said inserting step;

25       transmitting said second sequence of short message service transmission packets to said data collection unit from said access point via said short message service portion of said control channel of the personal communications system transmission protocol;

30       receiving said second sequence of short message service transmission packets in said control channel at said data collection unit from said transmitting said second sequence step;

      interpreting said request for data from said second sequence of short message service transmission packets;

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compiling data from said data collection unit, said data being requested in said request for data;

second accessing short message service portion of a control channel of the personal communications system transmission protocol from said data collection unit, wherein said short message service data comprises a third sequence of short message service transmission packets;

inserting said compiled data from said compiling step into said short message service transmission packets of said third sequence;

creating a fourth sequence of short message service transmission packets using said inserting step;

transmitting said fourth sequence of short message service transmission packets to said access point from said access point via said short message service portion of said control channel of the personal communications system transmission protocol.

31. A method for transmitting a data sequence via a personal communications system transmission protocol comprising the steps of:

collecting data at a data collection unit;

composing at least one short message from said collected data;

inserting said at least one short message in a control channel via a short message service portion of the personal communications system transmission protocol; and

transmitting said control channel including said at least one short message to an access point via said short message service portion of the personal communications system transmission protocol.

32. The method, according to Claim 31, further including the steps of:

stamping said collected data with a date and time that said data was collected by said collecting step.

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33. The method, according to Claim 31, wherein the step of transmitting uses the personal communications system transmission protocol of a network selected from the group consisting of a global system for mobility (GSM) technology network, a time division multiple access (TDMA) technology network, a code division multiple access (CDMA) technology network, frequency division multiple access technology network (FDMA) or personal access communications system technology network (PACS).

34. The method, according to Claim 31, further comprising the step of:

receiving said control channel including said at least one short message at said access point; and

interpreting said control channel including said at least one short message at said access point.

35. An apparatus for collecting and digitally transmitting a data sequence via a personal communications system transmission system protocol, said apparatus comprising:

means for electronically collecting data at a first location;

means for composing at least one short messages from said electronically collected data;

means for inserting said composed short message in a control channel of a short message service portion of the personal communications system transmission protocol; and

means for transmitting said control signal including said at least one short message to an access point via said short message service portion of said personal communications system transmission protocol.

36. The apparatus, according to Claim 35, further comprising:

means for time and date stamping said collected data within a time and date that the data was collected.

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37. The apparatus, according to Claim 35, further comprising:

means for storing said collected data for subsequent transmission to an access point.

5 38. The apparatus, according to Claim 35, wherein said means for transmitting uses the personal communications system transmission protocol of a network selected from the group consisting of a global system for mobility (GSM) technology network, a time division multiple  
10 access (TDMA) technology network, a code division multiple access (CDMA) technology network, frequency division multiple access technology network (FDMA) or personal access communications system technology network (PACS).

15 39. The apparatus, according to Claim 35, further comprising:

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A4 means for receiving a short message from said access point, wherein said short message is transmitted control channel signal of said short message service portion of said personal communications system transmission protocol;  
20 and

means for interpreting said short message from said access point into a command executable by said apparatus.

40. A device for coupling wire-line telecommunications equipment/systems and a digital personal  
25 communications system (PCS) radio receiver/transmitter used in a wireless digital PCS telecommunications network, the wireless digital PCS telecommunications network having a remote digital PCS transceiver system; the PCS digital radio receiver/transmitter being capable of digital radio  
30 communication with the remote digital PCS transceiver system, said device comprising:

a wire-line telecommunications equipment/systems interface connecting said device with said wire-line telecommunications equipment/systems creating a first two-  
35 way communications link;

first means for converting data, said data being input to said wire-line telecommunications equipment/systems from said device;

a digital PCS radio receiver/transmitter interface  
5 connecting said device with said digital PCS radio receiver/transmitter creating a second two-way communications link;

second means for converting data, said data being input to said digital PCS radio transmitter/receiver from  
10 said device;

means for determining a number of telephone number digits being dialed from said wire-line telecommunications equipment/systems, said number of telephone digits are capable of being input to said wire-line telecommunications equipment/system by a user, said means for determining comprising:

first means for receiving, storing and converting to digital status a plurality of digits in electronic memory, said stored digits comprising a telephonic number dialing sequence having a length capable of placing, dialing or accessing said wire-line telecommunications equipment/systems, wherein each of said stored numbers is represented by a specific number of digits to be dialed which have been input through the wire-line  
20 telecommunications equipment/systems by a service user;

second means for storing dialed telephone digits, said dialed telephone digits being input from said wire-line telecommunications equipment/systems;

means for sequentially analyzing at least a  
30 portion of said dialed telephone digits to said stored numbers, said digits being analyzed until said dialed telephone digits are equal to at least one of said stored number criteria, recognizing number input as previously categorized;

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means for generating a send signal to said digital PCS radio transmitter/receiver, wherein said send signal is generated after said specified number of digits corresponding to said at least one stored number is dialed; and

means for sending said stored dialed telephone number digits to said digital PCS radio transmitter/receiver, wherein said stored dialed telephone number digits are sent after said specified number of digits corresponding to said at least one stored number is dialed.

41. The device, according to Claim 40, further comprising:

means for generating a ring signal to said wire-line telecommunications equipment/systems, wherein said ring signal is generated when a telephone call is made to said wire-line telecommunications equipment/systems over the wireless digital PCS telecommunications network; and

means for acknowledging a first status and connecting said wireless digital PCS telecommunications network to said wire-line telecommunications equipment/systems, said first status being an off-hook condition on said wire-line equipment/system.

42. The device, according to Claim 40, wherein a data collection device is interconnected with said device, said data collection device being capable of transmitting data to said device.

43. A method for coupling wire-line telecommunications equipment/systems and a digital personal communications system (PCS) radio receiver/transmitter used in a wireless digital PCS telecommunications network, the wireless digital PCS telecommunications network having a remote digital PCS transceiver system; the PCS digital radio receiver/transmitter being capable of digital radio communication with the remote digital PCS transceiver system, said method comprising the steps of:



digits corresponding to said at least one stored number is dialed.

44. The method, according to Claim 43, further comprising the steps of:

5 generating a ring signal to said wire-line telecommunications system, wherein said ring signal is generated when a telephone call is made to said wire-line telecommunications equipment/system over the wireless digital PCS telecommunications network; and

10 completing a coupling of said wire-line telecommunications equipment/systems and said wireless digital PCS network upon recognition a first state; said first state being an off-hook condition on said wire-line telecommunications equipment/system.

15 45. The method, according to Claim 43, further comprising the step of:

interconnecting a data collection device with said device, said data collection device being capable of transmitting data to said device.

20 46. A device for transmitting and receiving data, said data being conveyed over a telecommunications network, said device comprising:

25 first means for converting data sent over said telecommunications network, said data being converted to be compatible with a personal communications network (PCS) short message service (SMS) transmission protocol;

means for modulating said data sent over said telecommunications network, said data being modulated over a bandwidth;

30 second means for converting data received from said telecommunications network; and

means for demodulating said data received from said telecommunications network, said data being demodulated from said bandwidth.

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47. The device, according to Claim 46, wherein said bandwidth ranges from about 3200 to 3800 Hz.

48. The device, according to Claims 46, wherein the personal communications system (PCS) short message service (SMS) transmission protocol is selected from the group consisting of a global system for mobility (GSM) technology network, a time division multiple access (TDMA) technology network, a code division multiple access (CDMA) technology network, frequency division multiple access technology network (FDMA) or personal access communications system technology network (PACS).

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